7. (Amended) A method for the synthesis of a compound according to claim 1 or the corresponding non-labeled form thereof, comprising the steps of:

a) adding a THF solution of 2 of Figure 7 to a suspension of PYBOP in THF followed by Et_3N,

b) adding an amine 1 of Figure 7 and Et_3N to the solution obtained in step (a),

c) adding a catalytic amount to the solution obtained in step (b) of pTsOH and refluxing the solution,

d) cooling the solution obtained after step (c) at ambient temperature and adding a sodium bicarbonate solution,

e) extracting the product obtained after step (d) with ethyl acetate and drying and concentrating the product with ethyl acetate,

f) purifying the residue obtained after step (e) by column chromatography on silica gel,

g) removing traces of water by washing the product of step (f) with trifluoroacetic anhydride,

h) reacting said persulphurated derivative obtained from step (g) with a suitable labelled or non-labelled perfluorinating agent and a suitable oxidant resulting in a compound having a high yield of fluor atom incorporation,

i) deprotecting the nitrogen function, resulting in a perfluoroalkyl amine derivative, and

j) coupling the perfluoroalkyl amine derivative obtained in step (i) with an activated form of 2-(2-nitro-imidazol-1-yl) acetic acid, resulting in the [^{18}F]-labelled or non-labelled perfluorinated-nitroaromatic compound.

A3

9. (Amended) A [^{18}F]-labeled compound obtainable by a method according to claim 5.

12. (Amended) A first intermediate compound according to claim 10, obtainable via steps a to g of the method of the invention.

A4

13. (Amended) A first intermediate compound according to claim 10, being ethyl 3-(N-phthalimido)-aminopropanedithioate, N-3,3,3-trifluoro-2-thioxopropyl) phthalimide, N-{[2-(trifluoromethyl)-1, 3-dithiolan-2-yl] methyl} phthalimide, methyl(or ethyl) 3-phthalimide-2,2-difluoropropanedithioate, N-[2,2-difluoro-3,3,3-tris(methylthio) propyl] phthalimide or N-[2,2-difluoro-3,3,3-tris(ethylthio)propyl] phthalimide.

16. (Amended) A second intermediate compound according to claim 14, obtainable via steps a to h of the method of the invention.

A5

17. (Amended) A second intermediate compound according to claim 14, being N-(3,3,3-trifluoropropyl)phthalimide.

20. (Amended) A third intermediate [^{18}F]-labeled compound obtainable via steps a to i of the method of the invention.

A6

21. (Amended) Use of compound according to claim 1 as bioactive compound.

22. (Amended) A [^{18}F] labeled bioactive compound synthesized using as intermediates a first and third intermediate as claimed in claim 10, a second intermediate having the general formula of a [^{18}F]-labeled perfluorinated amino acid derivative which is N-protected by an imido group or a synthetically equivalent group.

23. (Amended) A [^{18} F] labeled bioactive compound synthesized using as intermediates a first intermediate as claimed in claim 10.

24. (Amended) Method of perfuorination using as an intermediate a compound as claimed in claim 10.

26. (Amended) A method for the detection of tissue hypoxia in a patient comprising:
- introducing an [^{18}F] labeled nitroimidazole compound of claim 1 into said patient,
- imaging tissue hypoxia in said patient, and
- quantifying tissue hypoxia in said patient.

28. (Amended) A method for the detection of tissue hypoxia in a tissue comprising:
- introducing an [^{18}F] labeled nitroimidazole compound of claim 1 into a patient,
-removing a tissue sample from said patient, and
-analysing the emission in said tissue sample by autoradiograohy.

29. (Amended) A method for the detection of an [^{18}F] labeled bioactive compound in a patient comprising:
- introducing an [^{18}F] labeled bioactive compound according to claim 1 into said patient,
- imaging the presence of said [^{18}F] labeled bioactive compound in said patient, and
-optionally, quantifying the presence of said [^{18}F] labeled bioactive compound in said patient.

30. (Amended) A method for the detection of [^{18}F] labeled bioactive compound in a tissue comprising:
- introducing an [^{18}F] labeled bioactive compound of claim 1 into a patient,
- taking a tissue sample from said patient, and
- analysing the emission in said tissue sample by autoradiography.